UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/561,726	SPEIGHT ET AL.
	Examiner	Art Unit
	Kevin Mew	2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 December 2005</u>.

2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>25-53</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>25-28,30-32,37-41,43-45 and 50-53</u> is/are rejected.

7)☒ Claim(s) <u>29,33-36,42 and 46-49</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 December 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Detailed Action

1.   Acknowledgement is made of the cancelled claims 1-24, and the newly added claims 25-

53 filed in the preliminary amendment by applicant on 12/20/2005.

Specification

2.   The abstract of the disclosure is objected to because the abstract of the disclosure does

not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the

disclosure is required and must be presented on a separate sheet, apart from any other text.

Instead, the abstract of the disclosure is filed by reusing the PCT application (WO 2005/002148

A1) cover page.

Appropriate correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

3.   Claim 52 is rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter.

Claim 52 recites "a computer program element comprising computer program means for

performing the method of claim 39," which is a nonstatutory descriptive material per se.

Computer programs are computer listings per se, i.e., the descriptions or expressions of the

programs, which are not physical things. A computer program is merely a set of instructions

capable of being executed by a computer, the computer program itself is not a process. Thus,

computer programs are neither computer components nor statutory processes, as they are not acts

being performed. Such claimed computer program does not define any structural and functional

interrelationships between the computer program and other elements of a computer which permit

the computer program's functionality to be realized.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 25-28, 30-32, 39-41, 43-45 are rejected under 35 U.S.C. 102(e) as being

anticipated by Jung et al. (USP 7,054,317).

Regarding claim 25, Jung discloses an arrangement for Transmission Control Protocol

(TCP) flow control of data from a transmitting end (ATM transmitting terminal) to a receiving

end (ATM receiving terminal, col. 2, lines 8-14) via an intermediate element (TCP level in the

ATM transmitting terminal, col. 2, lines 22-23) comprising transmit buffer in a communication

system, the arrangement comprising:

means for determining delay in the transmit buffer (determining estimated round trip

delay RTT in the resource management cell, col. 3, lines 42-44); and

means for modifying TCP window size operably coupled to the means for determining

delay (TCP cwnd congestion window size is computed, col. 3, line 40, lines 55) and arranged to

modify TCP window size dependent on the determined delay (based on the estimated RTT, col. 3, lines 40-45 and Fig. 2).

Regarding claim 26, Jung discloses the arrangement of claim 25, wherein the means for modifying TCP window size comprises means for sending an indication of modified TCP window size to the transmitting end of the communication system (sending an acknowledgement signal from the ATM receiving terminal to the ATM transmitting terminal to indicate to transmit data to the ATM receiving terminal according to the computer size, col. 2, lines 25-29).

Regarding claim 27, Jung discloses the arrangement of claim 26, wherein the transmitting end of the communication system is a TCP server (the ATM transmitting terminal comprises a TCP level serving the ABR service, col. 2, lines 1-22, and Fig. 1).

Regarding claim 28, Jung discloses the arrangement of claim 26, wherein the means for sending an indication of modified TCP window size is configured to send the indication of modified TCP window size in an acknowledge packet (acknowledgement signal, col. 2, lines 25-26).

Regarding claim 30, Jung discloses the arrangement of claim 25, wherein the means for modifying TCP window size modifies the TCP window size as a function of the determined transmit buffer delay (cwnd is computed as a function of the RTT, col. 3, line 40) and a previously determined TCP window size (and a previous cwnd which is set at the initial stage,

col. 4, lines 15-16).

Regarding claim 31, Jung discloses the arrangement of claim 25, wherein the means for

modifying TCP window size modifies the TCP window size as a function of the determined

transmit buffer delay (cwnd is computed as a function of the RTT, col. 3, lines 40-44) and a

function of control loop gain (safety factor, col. 3, lines 40-44).

Regarding claim 32, Jung discloses the arrangement of claim 25, wherein the means for

modifying TCP window size comprises means for determining a number of received

acknowledge packets (determining a acknowledgement signal, col. 2, lines 25-26).

Regarding claim 39, Jung discloses a method for Transmission Control Protocol (TCP)

flow control of data from a transmitting end to a receiving end via an intermediate element

comprising a transmit buffer in a communication system, the method comprising:

determining delay in the transmit buffer (determining estimated round trip delay RTT in

the resource management cell, col. 3, lines 42-44); and

modifying TCP window size (TCP cwnd congestion window size is computed, col. 3,

line 40, lines 55) dependent on the determined delay (based on the estimated RTT, col. 3, lines

40-45 and Fig. 2).

Regarding claim 40, Jung discloses the method of claim 39, wherein modifying TCP

window size comprises sending an indication of modified TCP window size to a transmitting end

of the communication system (sending an acknowledgement signal from the ATM receiving

terminal to the ATM transmitting terminal to indicate to transmit data to the ATM receiving

terminal according to the computer size, col. 2, lines 25-29).

Regarding claim 41, Jung discloses the method of claim 40, wherein sending the

indication of modified TCP window size is sent in an acknowledge packet (acknowledgement

signal, col. 2, lines 25-26).

Regarding claim 43, Jung discloses the method of claim 39, wherein modifying TCP

window size comprises determining a new TCP window size as a function of the determined

transit buffer delay (cwnd is computed as a function of the RTT, col. 3, line 40) and a previously

determined TCP window size (and a previous cwnd which is set at the initial stage, col. 4, lines

15-16).

Regarding claim 44, Jung discloses the method of claim 39, wherein modifying TCP

window size comprises modifying the TCP window size as a function of the determined transmit

buffer delay (cwnd is computed as a function of the RTT, col. 3, lines 40-44) and a function of

control loop gain (safety factor, col. 3, lines 40-44)

Regarding claim 45, Jung discloses the method of claim 39, further comprising

determining a number of received acknowledge packets (determining an acknowledgement

signal, col. 2, lines 25-26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 37-38, 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung

et al. in view of Haumont et al. (US Publication 2004/0071086 A1).

Regarding claim 37, Jung discloses all the aspects of claim 25 above. Jung may not

explicitly show the arrangement of claim 25, wherein the communication system is a wireless

communication system and the intermediate element is a network controller of the system.

However, Haumont teaches a UMTS wireless communications environment where the

radio network controller (network node 7) that performs the function of adjusting the TCP

window size (paragraphs 0051, 0052).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the system for adjusting TCP window size in Jung with the

teaching of Haumont in showing a UMTS wireless communications environment where the radio

network controller (network node 7) that performs the function of adjusting the TCP window

size such that the system of Jung will show the communication system is a wireless

communication system and the intermediate element is a network controller of the system..

The motivation to do so is to provide a means to respond to very early signs of congestion much more effectively.

Regarding claim 38, Jung discloses all the aspects of claim 37 above. Jung may not explicitly show the arrangement of claim 37, wherein the wireless communication system comprises a UTRAN system.

However, Haumont teaches controlling TCP window size in a UTRAN environment (paragraphs 0037, 0052, 0067).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system for adjusting TCP window size in Jung with the teaching of Haumont in controlling TCP window size in a UTRAN environment such that the wireless communication system comprises a UTRAN system.

The motivation to do so is to use the UMTS quality of service parameter to provide congestion control measure.

Regarding claim 50, Jung discloses all the aspects of claim 39 above. Jung may not explicitly show the method of claim 39, wherein the intermediate element is a network controller of a wireless communication system.

However, Haumont teaches a UMTS wireless communications environment where the radio network controller (network node 7) that performs the function of adjusting the TCP window size (paragraphs 0051, 0052).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system for adjusting TCP window size in Jung with the teaching of Haumont in showing a UMTS wireless communications environment where the radio network controller (network node 7) that performs the function of adjusting the TCP window size such that the intermediate element is a network controller of a wireless communication system..

The motivation to do so is to provide a means to respond to very early signs of congestion much more effectively.

Regarding claim 51, Jung discloses all the aspects of claim 50 above. Jung may not explicitly show the method of claim 50, wherein the wireless communication system comprises a UTRAN system.

However, Haumont teaches controlling TCP window size in a UTRAN environment (paragraphs 0037, 0052, 0067).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system for adjusting TCP window size in Jung with the teaching of Haumont in controlling TCP window size in a UTRAN environment such that the wireless communication system comprises a UTRAN system.

The motivation to do so is to use the UMTS quality of service parameter to provide congestion control measure.

6.   Claims 52, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al.

in view of Bergamasco et al. (US Publication 2005/0141419 A1).

Regarding claim 52, Jung discloses all the aspects of claim 39 above. Jung may not

explicitly show a computer program element comprising computer program means for

performing the method of claim 39.

However, Bergamasco teaches using a computer program for implementing the function

of modifying a TCP window size in a network environment (paragraphs 0011, 0018, 0046)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the system for adjusting TCP window size in Jung with the

teaching of Bergamasco in using a computer program for implementing the function of

modifying a TCP window size such that the system of Jung will show a computer program

element comprising computer program means for performing the method of claim 39.

The motivation to do so is to modulate a flow condition of a TCP connection.

Regarding claim 53, Jung discloses an integrated circuit comprising the arrangement of

claim 25.

However, Bergamasco teaches using an integrated circuit for implementing the function

of modifying a TCP window size in a network environment (paragraphs 0011, 0018, 0055)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the system for adjusting TCP window size in Jung with the

teaching of Bergamasco in using a computer program for implementing the function of

modifying a TCP window size such that the system of Jung will show a computer program

element comprising computer program means for performing the method of claim 39.

The motivation to do so is to modulate a flow condition of a TCP connection.

Allowable Subject Matter

7.   Claims 29, 33-36, 42, 46-49 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 29, the arrangement of claim 25, wherein the means for modifying TCP window

size modifies the TCP window size as a function of the determined transmit buffer delay and a

target transmit buffer delay.

In claim 33, the arrangement of claim 32, wherein the means for modifying TCP window

size is arranged to further modify TCP window size in response to the means for determining a

number of received acknowledge packets determining a number of acknowledge packets equal to

half of a current number of data units in the system.

In claim 34, the arrangement of claim 25, wherein the means for determining delay in the

transmit buffer comprises means for determining mean buffer delay of a plurality of data units

passing through the transmit buffer and the means for modifying TCP window size modifies

TCP window size as a function of the mean buffer delay.

In claim 42, the method of claim 39, wherein modifying TCP window size comprises determining a new TCP window size as a function of the determined delay and a target transmit buffer delay.

In claim 46, the method of claim 45, wherein further modifying the TCP window size is performed in response to determining the number of received acknowledge packets is equal to half of a current number of data units in the communication system.

In claim 47, the method of claim 39, wherein determining delay in the transmit buffer comprises determining mean buffer delay of a plurality of data units passing through the transmit buffer and modifying TCP window size as a function of the mean buffer delay.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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